CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE
901 P Street, Room 313-B | Sacramento, CA 95814 | P.O. Box 942836 | Sacramento, CA 94236-0001

June 3, 2021

Donna Meyers
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924

Dear Donna Meyers,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP) submitted for the 180/400 Foot Aquifer Subbasin and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the 180/400 Foot Aquifer Subbasin GSP satisfies the objectives of the Sustainable Groundwater Management Act (SGMA) and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The Department will initiate the first five-year review of the 180/400 Foot Aquifer Subbasin GSP no later than January 23, 2025.

Please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov if you have any questions related to the Department's assessment or implementation of your GSP.

Thank You,



Craig Altare, P.G.
Supervising Engineering Geologist
Groundwater Sustainability Plan Review Section Chief

Attachment:

1. Statement of Findings Regarding the Approval of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan

DocuSign Envelope ID: 3A23DB1A-BA05-41B6-BC11-A5CDE984C264

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

STATEMENT OF FINDINGS REGARDING THE APPROVAL OF THE 180/400 FOOT AQUIFER SUBBASIN GROUNDWATER SUSTAINABILITY PLAN

The Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement their GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) This Statement of Findings explains the Department's decision regarding the Plan submitted by the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) for the 180/400 Foot Aquifer Subbasin (Basin No. 3-004.01).

Department management has reviewed the Department Staff Report, entitled Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report, attached as Exhibit A, recommending approval of the GSP. Based on its review of the Staff Report, Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with staff's recommendation and all the recommended corrective actions. The Department thus approves the Plan based on the Staff Report and the findings contained herein.

A. The Plan satisfies the required conditions as outlined in § 355.4(a) of the GSP Regulations (23 CCR § 350 *et seq*.):

    1. The Plan was submitted within the statutory deadline of January 31, 2020. (Water Code § 10720.7(a)(1); 23 CCR § 355.4(a)(1).)

    2. The Plan is complete, meaning it appears to include the information required by the Act and the GSP Regulations sufficient to warrant a thorough evaluation by the Department. (23 CCR § 355.4(a)(2).)

    3. The Plan covers the entire Subbasin. (23 CCR § 355.4(a)(3).)

B. The Plan conforms with Water Code §§ 10727.2 and 10727.4 in the Act and substantially complies with the GSP Regulations, and is likely to achieve the sustainability goal for the Subbasin. In making this determination, the Department considered the following:

DocuSign Envelope ID: 3A23DB1A-BA05-41B6-BC11-A5CDE984C264

1. The sustainable management criteria and goal to maintain groundwater conditions at or near 2015 conditions are sufficiently justified and explained. The Plan relies on decades of credible information and science to quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the Subbasin is being managed sustainably in accordance with SGMA.

2. The Plan demonstrates a thorough understanding of where data gaps exist and demonstrates a commitment to eliminate those data gaps. In particular, increasing the understanding of the hydraulic connectivity of the Salinas River with the shallow and principal aquifers will be important to reducing uncertainty regarding the impacts groundwater extraction has on both the shallow aquifer and surface water beneficial uses and users.

3. The projects and management actions designed to eliminate overdraft and prevent seawater intrusion are reasonable and commensurate with the level of understanding of the basin setting, as described in the Plan. The water charges framework, at this time, appears feasible and reasonably likely to mitigate overdraft, which is an important management action to help prevent undesirable results and ensure that the 180/400 Foot Aquifer Subbasin is operated within its sustainable yield.

4. The Plan provides a detailed explanation of how the varied interests of groundwater uses and users in the Subbasin were considered in developing the sustainable management criteria and how those interests, including domestic wells, would be impacted by the chosen minimum thresholds.

5. At this time, it does not appear that the Plan will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin. The Plan describes how multiple subbasins in the Salinas Valley Groundwater Basin will be coordinated and operate under the Integrated Sustainability Plan, which will cover the six subbasins overseen by the SVBGSA and incorporate many elements of each Plan into a basin-wide coordinated effort. The Plan also outlines a strategy to closely coordinate with the neighboring Pajaro Valley Subbasin to avoid adversely affecting or impeding sustainable groundwater management in each subbasin.

6. The Marina Coast Water District, the County of Monterey GSA, and the SVBGSA's member agencies (collectively, GSAs) have historically implemented numerous projects and management actions to address

DocuSign Envelope ID: 3A23DB1A-BA05-41B6-BC11-A5CDE984C264

problematic groundwater conditions in the Subbasin. The GSAs and their history of groundwater management provide a reasonable level of confidence that the Agencies have the legal authority and financial resources necessary to implement the Plan.

7. Through review of the Plan and public comments, the Department determines that the GSA adequately responded to comments that raised credible technical or policy issues with the Plan, sufficient to warrant approval of the Plan at this time. The Department also notes that the recommended corrective actions included in the Staff Report are important to addressing certain technical or policy issues that were raised and, if not addressed before future, subsequent plan evaluations, may preclude approval of the Plan in those future evaluations.

C. In addition to the grounds listed above, DWR also finds that:

1. The GSAs intends to reduce overdraft and halt seawater intrusion in order "to manage the groundwater resources of the 180/400 Foot Aquifer Subbasin for long-term community, financial, and environmental benefits to the Subbasin's residents and businesses." (180/400 Foot Aquifer Subbasin GSP, p. 8-3) The Plan's compliance with the requirements of SGMA and substantial compliance with the GSP Regulations supports the state policy regarding the human right to water (Water Code § 106.3). The Department developed its GSP Regulations consistent with and intending to further the policy through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring substantial compliance with the GSP Regulations, the Department has considered the state policy regarding the human right to water. (23 CCR § 350.4(g))

2. Management under the Plan intends to maintain current surface water depletion rates and the Plan includes reasoning that the current depletion rates are already incorporated into the Salinas River management plan, which is designed to protect environmental uses, maintain groundwater recharge, and fulfill the obligations of surface water right holders. Based on the above rationale, the Department determines that the GSAs considered public trust resources in development of the Plan.

3. The California Environmental Quality Act (CEQA) does not apply to the Department's evaluation and assessment of the Plan.

DocuSign Envelope ID: 3A23DB1A-BA05-41B6-BC11-A5CDE984C264

Based on the above, the GSP submitted by the SVBGSA for the 180/400 Foot Aquifer Subbasin is approved as being found to satisfy the requirements of SGMA and to be in substantial compliance with the GSP Regulations. Recommended corrective actions identified in the Staff Report will assist the Department's review of the Plan's implementation for consistency with SGMA and are thus recommended to be addressed in the GSP by the time of the Department's five-year review, which is set to begin on January 23, 2025, as required by Water Code § 10733.8.

Signed:

Karla Nemeth, Director

Date: June 3, 2021

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – 180/400 Foot Aquifer Subbasin

State of California
Department of Water Resources
Sustainable Groundwater Management Program
Groundwater Sustainability Plan Assessment Staff Report

Groundwater Basin Name:	Salinas Valley – 180/400 Foot Aquifer (No. 3-004.01)
Submitting Agency:	Salinas Valley Basin Groundwater Sustainability Agency
Recommendation:	Approve
Date:	June 3, 2021

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) submitted the Salinas Valley Groundwater Basin 180/400 Foot Aquifer Subbasin (Subbasin) Groundwater Sustainability Plan (GSP or Plan) to the Department of Water Resources (Department) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA).[1] The GSP covers the entire Subbasin for the implementation of SGMA.

After evaluation and assessment, Department staff find the 180/400 Foot Aquifer Subbasin GSP includes the required components of a GSP, demonstrates a thorough understanding of the basin based on the best available science and information, sets reasonable sustainable management criteria to prevent undesirable results as defined in the Plan, and proposes a set of projects and management actions that will likely achieve the sustainability goal defined for the Subbasin, as required by SGMA and the GSP Regulations.[2] Department staff will continue to monitor and evaluate the Subbasin's progress toward achieving the sustainability goal through annual reporting and future periodic GSP evaluation. Based on the current evaluation of the Plan, Department staff recommend approval of the Plan with recommended corrective actions described herein.[3]

This assessment includes five sections:

- **Section 1 – Summary:** Provides an overview of the basin setting, GSP contents, and overview of the Department's assessment and recommendations.

[1] Water Code § 10720 *et seq*.
[2] 23 CCR § 350 *et seq*.
[3] SGMA requires that the Department assess a Plan within two years of its submission by a GSA. The Department recognizes SVBGSA as a valid GSA and the submitted Plan as satisfying the prerequisites for assessment, thus initiating the statutory deadline for Plan assessment. However, the Department notes that ongoing litigation, in which the Department is a party, raises challenges to both the GSA and Plan (*City of Marina, et al. v. County of Monterey, et al*., County of Monterey Superior Court, Case No. 19CV005270). This assessment is limited to technical review of the submitted Plan, as required by SGMA. The Department understands that the outcome of current litigation could change groundwater management in the Subbasin relative to what is described in the Plan, necessitating further review by the Department.

- **Section 2 – Evaluation Criteria:** Describes the legislative requirements and the Department's evaluation criteria.
- **Section 3 – Required Conditions:** Describes the submission requirements, plan completeness, and basin coverage required for a GSP to be evaluated by the Department.
- **Section 4 – Plan Evaluation:** Provides a detailed assessment of the contents included in the GSP organized by each subarticle outlined in the GSP Regulations.
- **Section 5 – Staff Recommendation:** Includes the staff recommendation for the Plan and any recommended or required corrective actions, as applicable.

1 SUMMARY

The 180/400 Foot Aquifer Subbasin is designated as critically overdrafted and, therefore, a GSP was required to be submitted for the Subbasin by January 31, 2020. The SVBGSA submitted a GSP to the Department covering the entire 180/400 Foot Aquifer Subbasin on January 23, 2020. The Subbasin is one of nine subbasins in the Salinas Valley Groundwater Basin (Salinas Valley Basin), located in the Central Coast region of California. The Subbasin is bounded by Monterey Bay to the northwest, the Sierra De Salinas Range to the southwest, and by five adjacent subbasins. All five of the adjacent subbasins are designated as medium- or high-priority by the Department and are required to sustainably manage groundwater under SGMA. Four of the adjacent subbasins are located in the Salinas Valley Basin and GSPs covering those subbasins are required to be submitted in 2022. The other adjacent subbasin, Pajaro Valley, was designated as critically overdrafted and has an approved alternative to a GSP. A vicinity map showing the 180/400 Foot Aquifer Subbasin, GSA boundaries, and adjacent subbasins is provided as Figure 1.

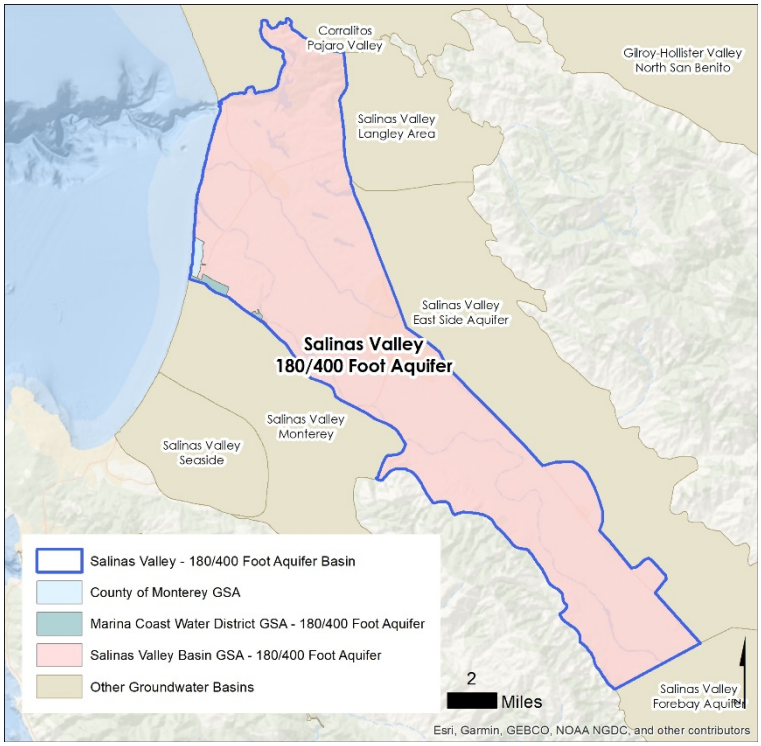


Figure 1: Vicinity Map of the 180/400 Foot Aquifer Subbasin including GSA boundaries and Adjacent Basins.

As stated in the Plan, 70 percent of the total land area in the Subbasin is irrigated agriculture. Urban development and associated land use occupy the remaining acreage, along with a small percentage of rural domestic, natural preserves, and wildlife refuge land use. Several cities and towns are within or partially in the Subbasin, including a

portion of the City of Salinas which contains the largest population. Water use in the Subbasin relies on three sources – groundwater, surface water, and recycled water – with groundwater being the main source for all water use. Irrigated agriculture accounts for approximately 85 percent of groundwater pumped in the Subbasin.

Seawater intrusion has been documented in the Subbasin for decades and continues to be an issue due to ongoing conditions of groundwater overdraft. According to the Plan, the 180-Foot and 400-Foot aquifers are experiencing seawater intrusion at a cumulative estimated rate of 10,500 acre-feet per year. Seawater intrusion has impacted an area of approximately 28,300 acres within the 180-Foot Aquifer and 18,000 acres within the 400-Foot Aquifer. Lands overlying the areas of seawater intrusion largely encompass the irrigated lands from the shore to the community of Castroville.

As detailed in the Plan, groundwater management actions have been ongoing in the Subbasin for decades, including adopting local ordinances, collecting and analyzing data, and developing projects largely to address the impacts of seawater intrusion. The Monterey County Water Resources Agency (MCWRA) funded multiple hydrogeologic investigations; developed Subbasin-wide monitoring networks; and develops and maintains programs to assess and manage conditions related to groundwater levels, seawater intrusion, and water quality degradation, including a well extraction reporting system. Monterey County has instituted several local ordinances aimed to address seawater intrusion by limiting groundwater extraction and the installation of new wells in certain portions of the Subbasin. Several local agencies, including MCWRA and Monterey One Water, have coordinated to develop and operate projects to address seawater intrusion, including the Castroville Seawater Intrusion Project, Monterey One Water Recycled Water Plant, and the Salinas River Diversion Facility. The SVBGSA intends to continue working collaboratively with these local partners to support existing groundwater management efforts and build upon them to achieve sustainable groundwater management in the Subbasin.

The Plan relies upon existing groundwater management programs currently operating in the Subbasin. Groundwater conditions and sustainable management criteria included in the Plan for groundwater levels, groundwater storage, seawater intrusion, and interconnected surface water are based on data collected from MCWRA's existing monitoring programs. The Plan also utilizes water use data compiled from the MCWRA's well extraction reporting program. Much of the groundwater quality content in the Plan is based on existing local and state regulatory programs operating in the Subbasin related to drinking water and irrigated lands.

The Plan outlines how input from interested parties was incorporated into the development of the Plan, including development of the sustainability goal and the determination of significant and unreasonable conditions, which informed the establishment of the sustainable management criteria. The sustainability goal for the Subbasin is to "[m]anage groundwater resources for long-term benefits including balancing the needs of all water users in the Subbasin." The Plan discusses the potential

effects the minimum thresholds may have on neighboring basins and the beneficial uses and users of groundwater, including an analysis of the potential impacts to domestic wells when setting the minimum thresholds for the chronic lowering of groundwater levels.

The Plan states that, based on public input, historically low groundwater elevations (which occurred in 2015 in many wells), were identified as significant and unreasonable conditions. Therefore, minimum thresholds were set to keep groundwater at least one foot above 2015 levels and measurable objectives were set to raise groundwater to 2003 levels, which represent higher, more stable conditions. The Plan sets the minimum threshold for groundwater storage as the calculated long-term sustainable yield of the Subbasin of 112,000 acre-feet per year. For water quality, the Plan proposes to not increase the number of wells currently identified as exceeding regulatory limits (e.g., a maximum contaminant level [MCL]) for 13 constituents of concern as the minimum threshold. For seawater intrusion, minimum thresholds are set to 2017 conditions based on feedback received during Plan development. The measurable objective for seawater intrusion is to reduce the extent of aquifer system impacted by seawater. The Plan proposes to not exceed the current rate of surface water depletion of 69,700 acre-feet per year for depletion of interconnected surface water. The SVBGSA identifies the necessity to improve the understanding and management of depletions as more information is obtained and the Salinas Valley Integrated Hydrologic Model (SVIHM) is published and incorporated into the Plan.

To achieve sustainability, the Plan proposes to assess fees for groundwater extraction and use these funds to implement other projects or management actions, as needed. The proposal to charge fees for extraction is called the water charges framework and involves a three-tiered system where groundwater users will be charged a series of fees based on the volume of annual groundwater extraction. The proposal includes exemptions for some groundwater pumpers, including de minimis users that will not be included in the fee program. The foundation of the water charges framework is a sustainable pumping allowance that each parcel will be allocated based on the calculated sustainable yield. Groundwater users will be allowed to pump more than their sustainable allocation; however, this additional pumping (supplemental pumping) will be subject to higher extraction fees. The proposed water charges framework is also proposed to be instituted in the other five groundwater subbasins overseen by the SVBGSA, representing a Salinas Valley Basin-wide management action.

The Plan outlines a series of other projects and management actions that may be implemented to address the current overdraft in the basin, if necessary. Some of the high priority projects propose to utilize and expand the existing supply augmentation projects operating in the Subbasin. One of the management actions includes the SVBGSA purchasing and retiring agricultural land to reduce the overall groundwater demand in the Subbasin.

After reviewing the Plan, Department staff conclude that the best available science and information was relied on to analyze and describe the physical characteristics of the

surface water and groundwater system in the hydrogeologic conceptual model (HCM), groundwater conditions, and water budgets. The Plan, however, also identifies a series of data gaps and includes a general plan to address them. One particular data gap that warrants further investigation is the limited understanding of the hydraulic connectivity of the Salinas River with the shallow aquifer and principal aquifers, and the specific locations where the river and groundwater system are hydraulically connected. Department staff agrees with the SVBGSA that addressing this data gap will improve the understanding of the physical system and reduce uncertainty; but do not find, at this time, that this data gap materially affects the SVBGSA's ability to achieve the sustainability goal for the Subbasin. Department staff will monitor progress toward filling this data gap and incorporating that information into the Plan.

The sustainable management criteria and goal to maintain conditions at 2015 or 2017 levels is reasonable, based on sufficient and credible information, and is consistent with SGMA and the GSP Regulations. The Plan describes the potential effects of the established sustainable management criteria on each water use sector and discusses how their sustainable management criteria reasonably address possible impacts to domestic wells if the groundwater level minimum thresholds are reached.

While specific details related to the water charges framework still need to be negotiated, at this time the concept of the water charges framework appears reasonable and likely to help achieve the Subbasin's sustainability goal. Additionally, the Plan contains proposed priority projects that currently appear to be reasonable and feasible, especially since many of them expand or utilize existing infrastructure and programs. Through the likely pumping reductions achieved by the water charges framework, and supply augmentation proposed by implementing projects, the Plan provides several pathways to mitigate overdraft in the Subbasin. Department staff believe these approaches to mitigate overdraft are reasonable and feasible at this time and, once implemented as described in the GSP, are likely to achieve the sustainability goal of the Subbasin.

Because the GSP's projects and management actions are an integral component for achieving the sustainability goal for the Subbasin, Department staff will monitor the progress and performance of these actions through annual reporting and five-year GSP updates (at a minimum). Failure to implement these projects and management actions, or modifications to those proposed or implemented projects and management actions, may affect the Department's conclusions regarding the adequacy of the GSP or its implementation in future evaluations.

Department staff recommend approval of the 180/400 Foot Aquifer Subbasin GSP. The SVBGSA has identified several areas for improvement to its Plan (e.g., addressing data gaps, incorporating new models that are currently under development, and expanding monitoring networks) and Department staff concur that those items are important and should be addressed. Department staff have also identified additional recommended corrective actions that should be considered by the GSA for the first periodic evaluation of its GSP (see Section 5). The recommended corrective actions generally focus on (1)

better understanding the interaction of surface water, the non-principal shallow aquifer, and the underlying principal aquifers, and (2) how management of the principal aquifers could affect beneficial uses and users of groundwater in the shallow aquifer or beneficial users of potentially interconnected surface water. Additional recommended corrective actions relate to clarifying information related to the sustainable management criteria. Addressing these recommended corrective actions will be critical for SVBGSA to demonstrate, on an ongoing basis, that implementation of the Plan is progressing toward achieving the sustainability goal.

2 EVALUATION CRITERIA

The SVBGSA submitted a single GSP to the Department to evaluate whether the Plan conforms to SGMA's requirements[4] and is likely to achieve the sustainability goal for the 180/400 Foot Aquifer Subbasin.[5] To achieve the sustainability goal for the Subbasin, the GSP must demonstrate that implementation of the Plan will lead to sustainable groundwater management, which means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.[6] Undesirable results are defined quantitatively by the GSA.[7] The Department is also required to evaluate whether the GSP will adversely affect the ability of an adjacent basin to implement its GSP or achieve its sustainability goal.[8]

For the GSP to be evaluated by the Department, it must first be determined that the Plan was submitted by the statutory deadline,[9] and that it is complete and covers the entire basin.[10] If these conditions are satisfied, the Department evaluates the Plan to determine whether it complies with SGMA and substantially complies with the GSP Regulations.[11] "Substantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal."[12]

When evaluating whether the Plan is likely to achieve the sustainability goal for the Subbasin, Department staff reviewed the information provided and relied upon in the GSP for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.[13] The Department's review considers whether there is a reasonable relationship between the information provided and the assumptions and conclusions made by the GSA, including whether the interests of the beneficial uses and users of groundwater in the basin have been considered; whether sustainable management criteria and projects and management actions described in the Plan are commensurate with the level of understanding of the basin setting; and whether those projects and management actions are feasible and likely to prevent undesirable results.[14]

[4] Water Code §§ 10727.2, 10727.4.
[5] Water Code § 10733(a).
[6] Water Code § 10721(v).
[7] 23 CCR § 354.26 *et seq*.
[8] Water Code § 10733(c).
[9] 23 CCR § 355.4(a)(1).
[10] 23 CCR §§ 355.4(a)(2), 355.4(a)(3).
[11] 23 CCR § 350 *et seq*.
[12] 23 CCR § 355.4(b).
[13] 23 CCR § 351(h).
[14] 23 CCR § 355.4(b)(1), (3), (4) and (5).

The Department also considers whether the GSA has the legal authority and financial resources necessary to implement the Plan.[15]

To the extent overdraft is present in a basin, the Department evaluates whether the Plan provides a reasonable assessment of the overdraft and includes reasonable means to mitigate the overdraft.[16] The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.[17] Lastly, the Department's review considers the comments submitted on the Plan and evaluates whether the GSA adequately responded to the comments that raise credible technical or policy issues with the Plan.[18]

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment of the Plan.[19] The assessment is required to include a determination of the Plan's status.[20] The GSP Regulations provide three options for determining the status of a Plan: Approved,[21] Incomplete,[22] or Inadequate.[23]

Even when review indicates that the GSP satisfies the requirements of SGMA and is in substantial compliance with the GSP Regulations, the Department may recommend corrective actions.[24] Recommended corrective actions are intended to facilitate progress in achieving the sustainability goal within the basin and the Department's future evaluations, and to allow the Department to better evaluate whether the Plan adversely affects adjacent basins. While the issues addressed by the recommended corrective actions do not, at this time, preclude approval of the Plan, the Department recommends that the issues be addressed to ensure the Plan's implementation continues to be consistent with SGMA and the Department is able to assess progress in achieving the sustainability goal within the basin.[25] Unless otherwise noted, the Department proposes that recommended corrective actions be addressed by the submission date for the first five-year assessment.[26]

The staff assessment of the GSP involves the review of information presented by the GSA, including models and assumptions, and an evaluation of that information based on scientific reasonableness. The assessment does not require Department staff to recalculate or reevaluate technical information provided in the Plan or to perform its own geologic or engineering analysis of that information. The staff recommendation to approve a Plan does not signify that Department staff, were they to exercise the professional

[15] 23 CCR § 355.4(b)(9).
[16] 23 CCR § 355.4(b)(6).
[17] 23 CCR § 355.4(b)(2).
[18] 23 CCR § 355.4(b)(10).
[19] Water Code § 10733.4(d); 23 CCR § 355.2(e).
[20] *Ibid*.
[21] 23 CCR § 355.2(e)(1).
[22] 23 CCR § 355.2(e)(2).
[23] 23 CCR § 355.2(e)(3).
[24] Water Code § 10733.4(d).
[25] Water Code § 10733.8
[26] 23 CCR § 356.4 *et seq*.

judgment required to develop a GSP for the basin, would make the same assumptions and interpretations as those contained in the Plan, but simply that Department staff have determined that the assumptions and interpretations relied upon by the submitting GSA are supported by adequate, credible evidence, and are scientifically reasonable.

Lastly, the Department's review and approval of the Plan is a continual process. Both SGMA and the GSP Regulations provide the Department with the ongoing authority and duty to review the implementation of the Plan.[27] Also, GSAs have an ongoing duty to reassess their plans, provide reports to the Department, and, when necessary, update or amend their plans.[28] The passage of time or new information may make what is reasonable and feasible at the time of this review to not be so in the future. The emphasis of the Department's periodic reviews will be to assess the progress toward achieving the sustainability goal for the basin and whether Plan implementation adversely affects the ability of adjacent basins to achieve their sustainability goals.

[27] Water Code § 10733.8; 23 CCR § 355.6 *et seq*.
[28] Water Code §§ 10728 *et seq.*, 10728.2.

3 REQUIRED CONDITIONS

A GSP, to be evaluated by the Department, must be submitted within the applicable statutory deadline. The Plan must also be complete and must, either on its own or in coordination with other Plans, cover the entire basin. If corrective actions have been identified by the Department, in the context of an Incomplete assessment, the GSA must also have sufficiently addressed those corrective actions within the period of time provided.

3.1 SUBMISSION DEADLINE

SGMA required basins categorized as high- or medium-priority as of January 1, 2017 and that were subject to critical conditions of overdraft to submit a GSP no later than January 31, 2020.[29]

The SVBGSA submitted its Plan on January 23, 2020, in compliance with the statutory deadline.

3.2 COMPLETENESS

GSP Regulations specify that the Department shall evaluate a GSP if that GSP is complete and includes the information required by SGMA and the GSP Regulations.[30]

The SVBGSA submitted an adopted GSP for the entire Subbasin. Department staff found the GSP to be complete and including the required information, sufficient to warrant an evaluation by the Department. The Department posted the GSP to its website on January 31, 2020.

3.3 BASIN COVERAGE

A GSP, either on its own or in coordination with other GSPs, must cover the entire basin.[31] A GSP that intends to cover the entire basin may be presumed to do so if the basin is fully contained within the jurisdictional boundaries of the submitting GSA(s).

The GSP intends to manage the entire Subbasin and the jurisdictional boundaries of the submitting GSA(s) cover the entire 180/400 Foot Aquifer Subbasin.[32]

[29] Water Code § 10720.7(a)(1).
[30] 23 CCR § 355.4(a)(2).
[31] Water Code § 10727(b); 23 CCR § 355.4(a)(3)
[32] 180/400 Foot Aquifer Subbasin GSP, Section 3.1, p. 55.

4 PLAN EVALUATION

As stated in Section 355.4 of the GSP Regulations, a basin "shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act." The Department staff's evaluation of the likelihood of the Plan to attain the sustainability goal for the Subbasin is provided below.

4.1 ADMINISTRATIVE INFORMATION

The GSP Regulations require each Plan to include administrative information identifying the submitting agency, describing the plan area, and demonstrating the legal authority and ability of the submitting agency to develop and implement a plan for that area.[33]

4.1.1 Evaluation Summary

The administrative information included in the GSP substantially complies with the requirements outlined in the GSP Regulations. The GSP describes in sufficient detail the GSA's authority to manage groundwater within the Subbasin. The Plan and the Joint Powers Authority between the local governmental organizations document the organizational structure and legal authority to implement and finance necessary projects and management actions. SVBGSA member agencies have historically implemented numerous projects and management actions to address problematic groundwater conditions in the Subbasin. The member agencies have also funded and cooperated with numerous studies to characterize groundwater conditions and to inform management strategies. That history of management provides a reasonable level of confidence that the SVBGSA can manage groundwater in the Subbasin to meet its sustainability goals.

The Plan sufficiently describes the beneficial uses and users of groundwater, the types and distribution of land use and water use types, existing water management, and land use management programs in the Subbasin. The Plan was developed using a thorough interested party outreach and communications strategy that included a survey of local groundwater users, a series of public meetings, and multiple public comment periods.

4.1.2 Agency Information

The SVBGSA was formed as a Joint Powers Authority between eight local governmental organizations. The SVBGSA is governed by an eleven-member board that administers the duties of the GSA. Two other GSAs, the Marina Coast Water District GSA and the County of Monterey GSA, also operate in the Subbasin and will work in coordination with the SVBGSA to implement the GSP. The Plan describes groundwater management efforts that have been occurring in the Subbasin for decades, including several local ordinances. These ordinances prohibit exporting groundwater from the Salinas Valley Basin; prohibit groundwater extraction and new well installation in specific areas of the Subbasin; regulate the classification, operation, maintenance, and destruction of wells in

[33] 23 CCR § 354.2 *et seq*.

certain areas of the Subbasin; and put a temporary moratorium on the drilling of new wells in additional areas of the Subbasin.[34] As the GSAs move forward with GSP implementation, these ordinances will continue to regulate certain groundwater activities in the Subbasin. The Plan proposes to coordinate and work cooperatively with the existing groundwater management programs in the Subbasin to achieve the sustainability goal.[35]

The Plan includes an estimate of planning-level costs for the first five years of implementation[36] and detailed cost estimates for each of the priority projects.[37] The GSP notes that implementation of this Plan will be done in coordination with the other five GSPs being developed for the Monterey County portion of the Salinas Valley Basin and separates out costs that directly benefit the Subbasin. The Plan describes the long-term funding strategy to support the GSA's administrative and related activities. In addition, the Plan explains that implementation of projects will depend, fully or partially, on revenue generated by the proposed water charges framework.

4.1.3 Description of Plan Area

The Plan includes a summary of land use stating irrigated agriculture is the most prominent land use in the Subbasin, covering approximately 73 percent of the acreage. Rural land use, existing mainly on the edges of the Subbasin, covers the second highest acreage at approximately 8 percent of the Subbasin area. Residential-urban land use, including census-designated places and six other associated land use types (i.e., commercial, industrial, multi-family, etc.), cover the remaining acreage.[38] The cities of Salinas, Marina, and Gonzales partially reside in the Subbasin; of those, the City of Salinas contains the largest population.

The Subbasin utilizes three water sources: groundwater, surface water, and recycled water. The Plan states groundwater is the primary water source in the Subbasin and separates groundwater demand into six water use sectors. Agriculture is the main water use sector using approximately 85 percent (96,600 acre-feet annual average) of the groundwater in Subbasin. The second highest use of groundwater is urban uses which account for 15 percent (17,400 acre-feet annual average) of the groundwater pumped in the Subbasin[39]. Surface water and recycled water are transported by the Castroville Seawater Intrusion Project to irrigate agriculture in the northwestern portion of the Subbasin to counteract seawater.[40]

The Plan includes an analysis of the existing well infrastructure in the Subbasin, which relied on the Department's Well Completion Report Map Application.[41] The Plan identifies

[34] 180/400 Foot Aquifer Subbasin GSP, Section 3.8, p. 81-84.
[35] 180/400 Foot Aquifer Subbasin GSP, Section 3.6.5, p. 76.
[36] 180/400 Foot Aquifer Subbasin GSP, Table 10-1, p. 418.
[37] 180/400 Foot Aquifer Subbasin GSP, Appendix 9C, p. 870.
[38] 180/400 Foot Aquifer Subbasin GSP, Section 3.4, p. 61.
[39] 180/400 Foot Aquifer Subbasin GSP, Section 3.4.2, p. 65.
[40] 180/400 Foot Aquifer Subbasin GSP, Section 3.4.1, p. 63.
[41] Well Completion Report Map Application. California Department of Water Resources, https://dwr.maps.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37.

a total 1,514 wells in the Subbasin and further summarizes them using the default categories in the application of 691 domestic, 780 production, and 43 public supply wells. The Plan utilizes this information to assess potential impacts to domestic wells in relation to the proposed minimum thresholds and measurable objectives. See Section 4.3.3 for more information on potential impacts to domestic wells.

The Plan describes existing monitoring programs operating in the Subbasin.[42] Many of the existing monitoring programs are overseen by the MCWRA, who collects and analyzes data for annual groundwater extraction, groundwater level and water quality in the Subbasin. Multiple other existing monitoring programs for groundwater quality and surface water flow also operate in the Subbasin. The Plan states the existing monitoring programs and monitoring networks constitute a well-developed and broadly distributed system that provides representative data throughout the Subbasin that have been, and will be, incorporated into the Plan as appropriate.[43]

SVBGSA describes the existing management plans (e.g., Monterey County Groundwater Management Plan, Urban Water Management Plans for Salinas, Chualar, Marina) and groundwater regulations (e.g., the Agricultural Order issued by the Central Coast Water Board and County moratorium on new well construction in portions of the Subbasin) in the Subbasin and their relation to the GSP.[44] SVBGSA also provides descriptions of existing conjunctive use programs and land use planning (i.e., county and city general plans).[45]

4.1.4 Notice and Communication

The Plan includes a Stakeholder Engagement and Communication Strategy chapter and several appendices to describe the GSA's notice and communication efforts during Plan development. The Plan describes the beneficial uses of groundwater in the Subbasin, which includes irrigation, drinking water supply (both municipal and small community systems, and private domestic wells), and environmental. Beneficial uses and users are represented in the structure of the Board of Directors, Planning Committee, and Advisory Committee.[46] The Subbasin contains several communities classified as Disadvantaged Communities (DACs) or Severely Disadvantaged Communities (SDACs). DACs in the Subbasin largely rely on groundwater for drinking water supply. The SVBGSA provided opportunities for public engagement and public input, including developing the *Salinas Valley Groundwater Stakeholder Issues Assessment*, which was prepared during the formation of the GSA to better understand the range of perspectives and stakeholder interests throughout the Salinas Valley Basin, including the Subbasin. The SVBGSA

[42] 180/400 Foot Aquifer Subbasin GSP, Sections 3.6-3.6.4, p. 70-75.
[43] 180/400 Foot Aquifer Subbasin GSP, Sections 3.6.5, p. 76.
[44] 180/400 Foot Aquifer Subbasin GSP, Sections 3.7-3.8, p. 76-84.
[45] 180/400 Foot Aquifer Subbasin GSP, Sections 3.9-3.10, p. 84-94.
[46] 180/400 Foot Aquifer Subbasin GSP, Section 11.3, p. 427, Appendices 11A and 11B, p. 900-901.

received many public comments regarding their draft GSP and provided responses to those comments in the final draft of the Plan.[47]

The Plan also includes a Stakeholder Engagement and Outreach Strategy.[48] The strategy is comprised of four phases. Phases one through three – GSA formation, GSP preparation, and GSP review – were completed prior to the GSP submittal to the Department. The Plan includes a description of each of these phases and the historical engagement and outreach done by the SVBGSA in the Subbasin. The fourth phase, Implementation and Reporting, is described in a single sentence as an activity that "…will continue through the duration of the 50-year planning window to ensure that sustainability is achieved and maintained".[49] While Department staff agree that engagement and outreach should continue during Plan implementation, the GSP Regulations require the GSP to include elements regarding prospective communication (e.g., a discussion of how public input will be used, how the GSA encourages involvement of diverse elements of the population, and methods to inform the public about progress toward implementing the Plan[50]). Department staff recommend the GSA include details about how communications will be conducted during Plan implementation, as required by the GSP Regulations, in future updates to its Plan and also in its annual reports (see Recommended Corrective Action 1).

4.2 Basin Setting

GSP Regulations require information about the physical setting and characteristics of the basin and current conditions of the basin, including a hydrogeologic conceptual model; a description of historical and current groundwater conditions; and a water budget accounting for total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions.[51]

4.2.1 Evaluation Summary

The basin setting description included in the GSP substantially complies with the requirements outlined in the GSP Regulations. The GSP describes in sufficient detail the physical setting, groundwater conditions, and water budget for the Subbasin. The Plan also identifies data gaps and areas of uncertainty as required.

The characterization and related information in the Plan demonstrate a satisfactory understanding of the hydrogeologic and groundwater conditions of the Subbasin. The technical information used to characterize the basin setting are based on the best available information and best available science at the time the Plan was prepared and that the conclusions are scientifically reasonable. The hydrogeologic conceptual model and the numerical model incorporate the relevant hydrologic processes in the Subbasin

[47] 180/400 Foot Aquifer Subbasin GSP, Appendix 11G, p. 951.
[48] 180/400 Foot Aquifer Subbasin GSP, Appendix 11F, p. 942.
[49] 180/400 Foot Aquifer Subbasin GSP, Section 11.6, p. 435.
[50] 23 CCR § 354.10(d).
[51] 23 CCR § 354.12 *et seq.*

and the understanding of the hydrogeologic conditions based on previous studies. The SVBGSA's understanding of the Subbasin setting is sufficiently explained and appears adequate to develop and implement a GSP for sustainable groundwater management.

The SVBGSA recognizes there are data gaps in the Subbasin that warrant further study. Specifically, the Plan states there is a need to develop a better understanding of conditions in the Deep Aquifer[52] and the non-principal shallow aquifer, and how the Salinas River interacts with the groundwater system (i.e., the timing and quantity of depletions).[53] The SVBGSA reviewed and responded to public comments and plans to incorporate more recent or more representative data into the basin characterization as new tools are available and more relevant information is obtained.

During GSP implementation, it will be important to prioritize each data gap, provide a description of what is required to fill the data gaps, and establish a schedule to fill the prioritized data gaps. As new information and data relevant to hydraulically connected surface water and groundwater are made available, they should be incorporated into the Plan. The collection and analysis of new information and data especially related to the shallow aquifer and the Salinas River, in concert with incorporation of these data into the SVIHM, will improve the understanding of groundwater and surface water interaction in the Subbasin.

The water budget components provided in the Plan, including an assessment of sustainable yield and change in storage (i.e., conditions of overdraft), were developed using the best available tools and information available at the time the GSP was prepared and substantially comply with the requirements outlined in the GSP Regulations. Historical, current, and future water budgets were developed using different methods because the SVIHM was still in development when the GSP was finalized; however, a draft version of the SVIHM was available for limited use. The SVBGSA contends that a comprehensive method and approach to the water budgets would improve comparability and further reduce uncertainty and intends to consolidate the budgets into a single approach once the final SVIHM is available. Department staff agree that making use of the new model, once it is finalized by the USGS, is likely to improve comparability of water budgets and recommend that this be completed at the earliest possible opportunity. In the event there is a delay in gaining access to the final SVIHM, the SVBGSA will need to update portions of the Plan that currently rely on the SVIHM or that plan to rely on the SVIHM in future updates, as appropriate.

4.2.2 Hydrogeologic Conceptual Model

The Plan states that the Subbasin contains three principal aquifers: the 180-Foot Aquifer, 400-Foot Aquifer, and the Deep Aquifers. A distinct aquitard separates each of the principal aquifers, the uppermost being the Salinas Valley Aquitard, which overlies the 180-Foot Aquifer. The Salinas Valley Aquitard extends from Monterey Bay in the north to

[52] 180/400 Foot Aquifer Subbasin GSP, Section 4.7, p. 123.
[53] 180/400 Foot Aquifer Subbasin GSP, Section 5.6.2, p. 181.

the town of Chualar in the southern portion of the Subbasin. An approximately 100-foot thick layer of sediment acting as a shallow aquifer lies above the Salinas Valley Aquitard. The Plan concludes that the shallow aquifer does not act as a significant source of groundwater for the Subbasin and, therefore, is not considered a principal aquifer.[54]

Several commenters questioned the SVBGSA with respect to identifying the 180-Foot Aquifer, 400-Foot Aquifer, and the Deep Aquifers as the only principal aquifers in the Subbasin. The commenters stated there are other aquifers in the Subbasin, the shallow aquifer and the Dune Sand Aquifer, that should also be considered principal aquifers for purposes of management. The main argument presented by these commenters for why those two aquifers should also be considered principal aquifers is due to their importance to groundwater dependent ecosystems (GDEs).

Department staff recognize the potential importance shallow aquifers have on supporting and sustaining GDEs. However, Department staff do not believe the SVBGSA erred in its identification of principal aquifers. As defined in the GSP Regulations, principal aquifers are "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems."[55] The definition for principal aquifers in the GSP Regulations provides local agencies with discretion to determine what constitutes "significant or economic" when identifying the principal aquifers in a basin. While the definition does not preclude shallow aquifers from being identified as principal aquifers, it also does not require them to be identified as such.

After review of the information presented in the Plan, Department staff conclude the SVBGSA did not act unreasonably when defining principal aquifers. Department staff do find that the shallow aquifer in the Subbasin is relevant to the understanding of groundwater and surface water interactions. Department staff agree with the assessment in the Plan that more information is needed to better understand the hydraulic connection between the shallow aquifer, the principal aquifers, and groundwater uses and users, including GDEs (see Recommended Corrective Action 2).

The 180-Foot Aquifer and 400-Foot Aquifer act as the primary producing aquifers for domestic, irrigation, and municipal groundwater supply in the Subbasin. These aquifers are separated by the 180/400 Foot Aquitard, a layer consisting of interbedded clay and sand layers that is widespread in the Subbasin, but varies in thickness and quality, resulting in areas of hydraulic connection between the 180-Foot and 400-Foot Aquifers. In these areas where the 180/400 Foot Aquitard is thin or discontinuous, groundwater and potentially seawater in the 180-Foot Aquifer can migrate downward into the 400-Foot Aquifer.[56] The Deep Aquifers, at depths from 900 to 1,500 feet, contain wells used for irrigation and municipal water supply, but overall, the characteristics of the Deep Aquifers

[54] 180/400 Foot Aquifer Subbasin GSP, Sections 4.4.1-4.4.1.1, p. 111.
[55] 23 CCR § 351(aa).
[56] 180/400 Foot Aquifer Subbasin GSP, Section 4.4.1.3, p. 112.

are poorly understood (see Section 4.4.2 for discussion of the GSP's plan to address groundwater level and seawater intrusion monitoring data gaps in the Deep Aquifers).[57]

The Plan states natural recharge to the principal aquifers is assumed to be limited based on surface soil properties and the extent of the low permeability Salinas Valley Aquitard. The limited recharge comes in the form of infiltration from the Salinas River and associated tributaries, deep percolation of excess irrigation water, and deep percolation of infiltrating precipitation. The Plan states soil property maps and applications, such as the Soil Agricultural Groundwater Banking Index, provide limited utility for assessing natural recharge in the Subbasin due the uncertainty surrounding the interconnectivity of surface water and the principal aquifers. After evaluating the Plan and considering the public comments, Department staff believe it will be beneficial for the SVBGSA to continue working to identify natural recharge locations in the Subbasin to better inform the SVIHM and its simulation of recharge.

The Salinas River is the primary surface water feature in the Subbasin. While the Plan acknowledges the river is likely hydraulically connected to the non-principal shallow aquifer, the location and magnitude of interconnection is not well known. Additionally, groundwater flow between the shallow aquifer and the underlying 180-Foot Aquifer is not well understood.[58] The Plan provides a review of groundwater elevation data from wells in the 180-Foot Aquifer to identify potential areas along the river where interconnection may occur. The review involved flagging any areas in the Subbasin with groundwater water elevations of less than 20 feet below groundwater as potentially connected. The results of the review indicated that areas where the Salinas River is most likely to be interconnected with groundwater are the northern portion of the Subbasin, near the coast; and at the southern portion of the Subbasin, near the border of the Forebay Aquifer Subbasin and the City of Gonzales. [59] The Plan proposes to continue developing a better understanding of the conditions in the shallow aquifer, including the locations and extent of interactions between the river, the shallow aquifer, and the deeper aquifers. As a clearer understanding of the interconnection of the Salinas River, shallow aquifer, and principal aquifers is developed, the Plan should be updated accordingly (see Recommended Corrective Action 2).

4.2.3 Groundwater Conditions

The Plan states that groundwater levels in the Subbasin show a general decline since approximately 1998 based on an analysis of data collected by MCWRA.[60] The Plan includes a summary of current (post-2015) and historical (pre-2015) groundwater level elevations for both the 180-Foot Aquifer and 400-Foot Aquifer, including maps of monitoring locations, water level contours, and hydrographs. While the analysis covers the majority of the Subbasin, SVBGSA recognizes that MCWRA's groundwater elevation

[57] 180/400 Foot Aquifer Subbasin GSP, Section 4.4.1.5, p. 112-113.
[58] 180/400 Foot Aquifer Subbasin GSP, Section 4.4.1, p. 111.
[59] 180/400 Foot Aquifer Subbasin GSP, Section 5.6.2, p. 181-183.
[60] 180/400 Foot Aquifer Subbasin GSP, Section 5.1.3, p. 151.

contour maps do not fully cover the entire Subbasin; this was identified as a data gap to be addressed during implementation.[61] Groundwater elevation data are limited in the Deep Aquifers, which is also recognized as a data gap (see Section 4.4.2 for more on monitoring network data gaps).[62]

The Plan documents that there is a basin-wide downward groundwater flow gradient from the 180-Foot Aquifer to the 400-Foot Aquifer; the magnitude of the downward gradient increases during the irrigation season as pumping increases.[63] Vertical flow from the 400-Foot Aquifer to the Deep Aquifers and from the shallow aquifer to the 180-Foot Aquifer is not well known according to the Plan. Since vertical groundwater flow may affect GDEs or other users of groundwater in the shallow aquifer, the SVBGSA should investigate the vertical flow from shallow aquifer to the deeper aquifers to better understand how beneficial uses and users are impacted by groundwater management of the principal aquifers (see Recommended Corrective Action 2).

Despite the data gaps noted above and as described in the Plan, the analysis of groundwater level conditions provided in the Plan utilizes the best available information and science. Also, Department staff believe the Plan's documentation of the analysis indicates that the SVBGSA sufficiently understands current conditions in the majority of the Subbasin and is able to rely on this information to define reasonable sustainable management criteria.

The Plan states the total estimated groundwater storage loss as a result of lowering groundwater levels and seawater intrusion for the entire period of record (1944 to 2017) is approximately -11,700 acre-feet per year.[64] The average annual loss of storage based on lowering of groundwater elevations between 1944 and 2017 is approximately -1,200 acre-feet per year; and the average annual loss of storage due to seawater intrusion is estimated at between -8,000 and -14,000 acre-feet per year, with the median volume being -10,500 acre-feet per year. The Plan's approach to estimate groundwater storage changes in this manner is a reasonable approach.

As of 2017, the areal extent of seawater intrusion in the 180-Foot Aquifer and the 400-Foot Aquifer was 28,300 acres and 18,000 acres, respectively. The acreage of seawater intrusion in the 400-Foot Aquifer will likely continue to increase, and resemble the acreage in 180-Foot Aquifer, due to downward migration of high chloride groundwater from the 180-Foot Aquifer.[65] Seawater currently intrudes the Subbasin at an estimated rate of 10,500 acre-feet per year based on an analysis of reports produced by MCWRA, which collects groundwater samples from 121 wells to monitor the advancement of seawater intrusion. Department staff find the information in the Plan regarding seawater intrusion to be credible and sufficient to understand its current extent in the Subbasin; however,

[61] 180/400 Foot Aquifer Subbasin GSP, Section 5.1.2, p. 128.
[62] 180/400 Foot Aquifer Subbasin GSP, Section 5.1.2, p. 137.
[63] 180/400 Foot Aquifer Subbasin GSP, Section 5.1.4, p. 154.
[64] 180/400 Foot Aquifer Subbasin GSP, Section 5.2-5.2.4, p. 156-158.
[65] 180/400 Foot Aquifer Subbasin GSP, Section 5.3.3, p. 165.

data gaps (i.e., monitoring the Deep Aquifers) should be addressed and newly acquired data and information should be incorporated into the Plan (see Section 4.4.2 of this report).

The Plan describes degradation of groundwater quality from both natural and anthropogenic sources occurs in the Subbasin. The water quality degradation and trends analysis in the Plan is based on studies conducted by the USGS for the GAMA program. The groundwater quality conditions discussion includes the assessment of potential degradation of domestic, municipal, and agricultural groundwater supply. Based on the SVBGSA's analysis of water quality conditions, thirteen constituents of concern were identified as warranting monitoring and potential management in the Subbasin. One constituent of concern, nitrate, is discussed in detail and is described as having been present at elevated concentrations throughout the Subbasin for several decades based on monitoring and reporting to the MCWRA and the Central Coast Water Board.[66] The analysis of current groundwater quality conditions in the Plan indicates the SVBGSA understands the groundwater quality issues in the Subbasin and the relation of those constituents to groundwater supply and beneficial uses and users.

The SVBGSA states in the Plan that based on historical records and publicly available InSAR data, land subsidence is negligible in the Subbasin. The Plan recognizes that the lack of subsidence is not related to the lack of susceptible physical characteristics (e.g., layers of clay in the subsurface) but may be due to seawater intrusion maintaining relatively stable groundwater levels in the Subbasin.[67] The Plan's assessment that land subsidence in the Subbasin has been negligible is consistent with the best available information and the Department staff's understanding.

The Plan states the location and degree of interconnected surface water is not well known in the Subbasin and cites multiple studies that have concluded the principal aquifers are generally not considered to be hydraulically connected to the Salinas River or its tributaries.[68] The Plan also describes the defining feature of the Subbasin is a shallow, laterally extensive clay layer that effectively separates the Salinas River from the principal aquifers[69] and that "SGMA does not require that disconnected stream be analyzed or managed."[70] While the Plan includes evidence the principal aquifers may not be connected to the river system, it also includes the statement "an additional evaluation of the connection between surface water and 180-Foot Aquifer is warranted."[71]

Determining the location of interconnected surface water with groundwater, including the shallow aquifer and the principal aquifers (particularly the 180-Foot Aquifer), will be necessary to understand and manage the depletion of interconnected surface water in

[66] 180/400 Foot Aquifer Subbasin GSP, Section 5.4.3, p. 172-176.
[67] 180/400 Foot Aquifer Subbasin GSP, Section 5.5, p. 177-178.
[68] 180/400 Foot Aquifer Subbasin GSP, Section 5.5, p. 179.
[69] 180/400 Foot Aquifer Subbasin GSP, Section 5.5, p. 179.
[70] 180/400 Foot Aquifer Subbasin GSP, Section 5.5, p. 179.
[71] 180/400 Foot Aquifer Subbasin GSP, Section 5.6.2, p. 181.

the Subbasin. The interconnection of surface water and the groundwater system was a point of interest in multiple public comments letters received for the Plan. The SVBGSA should further investigate the interconnectivity of surface water and the groundwater system and update the Plan accordingly during GSP implementation (see Recommended Corrective Action 2**).**

The Plan includes a location map of the distribution of potential GDEs based on the Nature Conservancy's Natural Communities Commonly Associated with Groundwater (NCCAG) dataset. The Plan further states, "there has been no verification that the locations shown on [the NCCAG] map constitute verified GDEs… [and] additional field reconnaissance is necessary."[72] However, the Plan does not provide any additional detail on the timing or scope of the necessary additional field reconnaissance. Department staff recommend the SVBGSA clarify the steps and timing to conduct the necessary field reconnaissance to identify GDEs and update the Plan, as necessary, to identify GDEs once that work is complete (see Recommended Corrective Action 3).

4.2.4 Water Budgets

As required by the GSP Regulations, the Plan includes water budgets accounting for the inflow and outflow of water into the Subbasin, including: a historic, a current, and two future projections water budgets. The water budgets were developed using different methods due to limitations in data availability that prevented a singular method from being used. Department staff believe the different approaches used in the Plan are commensurate with the level of understanding of the Subbasin and provide a reasonable accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the Subbasin. The SVBGSA will reevaluate the historical and current water budgets using the final SVIHM, when it becomes available, which will allow the water budgets to use a consistent approach.[73]

SVBGSA estimates the uncertainty associated with the historic and current groundwater budgets by comparing the net change in storage against estimated storage changes calculated solely from changes in groundwater elevation.[74] The ranges of estimated uncertainty (2 percent for the historical period and 42 percent for the current period) are not unreasonable to Department staff considering the range of uncertainty likely present in any of the individual water budget components. While the Department generally encourages, and the GSP Regulations require, understanding of the uncertainty associated with technical information relied on for GSP development, Department staff also understand that the objective of the SVBGSA is not to reduce uncertainty of the water budgets as estimated in the initial GSP. Rather, Department staff understand the objective of the SVBGSA is to utilize the final SVIHM to estimate water budgets in a comprehensive manner. Department staff encourage that approach and note that the

[72] 180/400 Foot Aquifer Subbasin GSP, Section 4.4.4, p. 117.
[73] 180/400 Foot Aquifer Subbasin GSP, Section 6, p. 184.
[74] 180/400 Foot Aquifer Subbasin GSP, Section 6.9, p. 214.

SVBGSA should add a detailed description of the SVIHM, including its uncertainty, in future updates of the Plan.

Two future water budgets were produced using the draft SVIHM and include climate change projections available via the Department for the years 2030 and 2070. The future water budgets project the inflows and outflows for both the surface water system and the groundwater system, including total projected annual groundwater pumping for the agricultural and urban water use sectors and projected overdraft.

All four water budgets include an estimate of change in groundwater storage and sustainable yield for groundwater extraction. The reported changes in storage account for both changes in groundwater storage and influx of seawater, with the total change in storage being the sum of change in groundwater storage and the average rate of seawater intrusion. The sustainable yield represents the total groundwater pumping minus the total change in storage for each of the water budgets.

Department staff believe the rationale and information utilized to develop the water budgets is sufficiently thorough and substantially complies with the requirements in the GSP Regulations. The analysis indicates each of the four budgets incorporates the best available information and science. The water budgets also appear sufficient to understand the state of overdraft and establish reasonable sustainable management criteria. The Plan also adequately describes assumptions associated with each budget and sufficiently describes components of the water budgets that will be updated during Plan implementation.

4.3 SUSTAINABLE MANAGEMENT CRITERIA

GSP Regulations require each Plan to include a sustainability goal for the basin and to characterize and establish undesirable results, minimum thresholds, and measurable objectives for each applicable sustainability indicator, as appropriate.[75]

4.3.1 Evaluation Summary

Department staff find the sustainable management criteria included in the Plan were developed using sufficient and credible information and science, and substantially comply in form and presentation with the requirements outlined in the GSP Regulations. Significant and unreasonable conditions, as defined in the Plan, are based on historical conditions in the Subbasin that were identified as unacceptable by the SVBGSA in conjunction with feedback from interested parties in the Subbasin. The minimum thresholds are generally set at, or above, groundwater conditions observed in the basin since 2015. Specifically, the Plan aims to maintain groundwater levels at least one foot above 2015 levels, to limit degradation of groundwater quality resulting from groundwater management, and to maintain depletions of interconnected surface waters at levels no worse than the best estimate of current average stream depletion. The minimum threshold for seawater intrusion was set at the 500 mg/L chloride concentration isocontour

[75] 23 CCR § 354.22 *et seq*.

mapped by MCWRA in 2017. The difference between measured seawater intrusion between 2015 and 2017 is negligible, so setting the minimum threshold at the 2017 value appears to be reasonable. Measurable objectives defined in the Plan largely aim to improve groundwater conditions in the Subbasin over time.

The Plan sufficiently describes the rationale used to develop sustainable management criteria for each sustainability indicator, including a discussion of possible effects on neighboring basins and on the uses and users of groundwater in the Subbasin.

Department staff believe that further work will be necessary by the GSA to appropriately define the scope of its evaluation of water quality undesirable results and, as described by the GSA, to update its best estimate of current depletions of interconnected surface water. Department staff strongly encourage the GSA to address any recommended corrective actions and other suggestions for improvement no later than the first five-year update.

4.3.2 Sustainability Goal

The sustainability goal, as defined in the Plan, is "…to manage the groundwater resources of the 180/400 Foot Aquifer Subbasin for long-term community, financial, and environmental benefits to the Subbasin's residents and businesses."[76] The Plan further states the GSP will ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of the Subbasin with the goal to balance the needs of all water users in the Subbasin. The Plan includes a suite of projects and management actions that may be implemented to ensure the Subbasin operates within its sustainable yield and achieves the sustainability goal. The information provided in the Plan for the sustainability goal reasonably sets forth how sustainable groundwater management for the Subbasin will be achieved and substantially complies with the GSP Regulations.

4.3.3 Sustainability Indicators

GSP Regulations specify that an agency define conditions that constitute sustainable groundwater management for a basin, including the characterization of undesirable results and the establishment of minimum thresholds and measurable objectives for each applicable sustainability indicator.[77]

Sustainability indicators are defined as any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results.[78] Sustainability indicators thus correspond with the six undesirable results – chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, significant and unreasonable degraded water quality, including the

[76] 180/400 Foot Aquifer Subbasin GSP, Section 8.2, p. 257-258.
[77] 23 CCR § 354.22 *et seq*.
[78] 23 CCR § 351(ah).

migration of contaminant plumes that impair water supplies, land subsidence that substantially interferes with surface land uses, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water[79] – but refer to groundwater conditions that are not, in and of themselves, significant and unreasonable. Rather, sustainability indicators refer to the effects caused by changing groundwater conditions that are monitored, and for which criteria in the form of minimum thresholds are established by the agency to define when the effect becomes significant and unreasonable, producing an undesirable result.

The following subsections thus consolidate three facets of sustainable management criteria: undesirable results, minimum thresholds, and measurable objectives. Information, as presented in the Plan, pertaining to the processes and criteria relied upon to define undesirable results applicable to the basin, as quantified through the establishment of minimum thresholds, are addressed for each sustainability indicator. However, a submitting agency is not required to establish criteria for undesirable results that the agency can demonstrate are not present and are not likely to occur in a basin.[80]

4.3.3.1 Chronic Lowering of Groundwater Levels

The Plan describes significant and unreasonable groundwater level conditions as those that are at or below the lowest observed groundwater elevations, cause significant financial burden to local agricultural interests, or interfere with the other sustainability indicators.[81] The Plan defines the minimum threshold as one foot above the groundwater levels observed in 2015 at 23 wells included in the monitoring network for the Subbasin. The measurable objectives were defined as the groundwater levels equivalent to those observed in 2003, a year when groundwater elevations were higher than 2015 and that, when achieved, offer a measure of operational flexibility. The Plan states that, based on public engagement and outreach, historical lows in groundwater elevations (2015 conditions) were identified as significantly impactful to groundwater users in the Subbasin and were thus identified as significant and unreasonable.[82]

The Plan defines an undesirable result as 15 percent or more of the wells in the monitoring network exceed their minimum thresholds (i.e., if groundwater levels fell below the threshold) over the course of any one year or if the minimum threshold is exceeded at any one representative monitoring site for more than two sequential years. The Plan justifies setting an undesirable result as 15 percent of wells by stating it balances the allowance for unanticipated hydrologic conditions with the possibility for significant and unreasonable conditions impacting users if a higher percentage was selected.

The Plan states that limiting declines of groundwater to the minimum threshold levels would protect most domestic wells and their ability to extract groundwater. However, the SVBGSA acknowledges that maintaining groundwater levels at one foot above 2015

[79] Water Code § 10721(x).
[80] 23 CCR § 354.26(d).
[81] 180/400 Foot Aquifer Subbasin GSP, Section 8.6.1, p. 262.
[82] 180/400 Foot Aquifer Subbasin GSP, Section 8.6.1, p. 262.

conditions could result in 11 percent and 21 percent of existing domestic wells in the 180-Foot and 400-Foot aquifers, respectively, containing less than 25 feet of water. At the measurable objective (equivalent to 2003 conditions), those values decrease to 9 percent and 18 percent, respectively.[83] This analysis is briefly described in the GSP as being based on a comparison of the minimum thresholds and the range of domestic well depths in the Department's Online System for Well Completion Reports (OSWCR) database. The SVBGSA states that it would be impractical to manage the entire basin to fully protect impacts to the shallowest domestic wells.

Department staff find the sustainable management criteria for groundwater levels to be commensurate with the understanding of current conditions, responsive to interested party feedback, and reasonably protective of the groundwater uses and users in the Subbasin. Preventing groundwater levels in the Subbasin from getting worse than those conditions experienced in 2015 is a reasonable approach that will help avoid a significant and unreasonable depletion of supply in the Subbasin.[84] The Plan provides a credible and sufficient assessment of the impacts the minimum thresholds would have on domestic wells. However, the GSA should inventory and better define the location of active wells in the Basin, and document known impacts to drinking water users caused by groundwater management, should they occur, in subsequent annual reports and periodic updates.

4.3.3.2 Reduction of Groundwater Storage

The Plan describes significant and unreasonable groundwater storage conditions as those that lead to long-term reduction in storage or interfere with the other sustainability indicators.[85] The minimum threshold is defined in the Plan as the long-term future sustainable yield of 112,000 acre-feet per year. The Plan defines the measurable objective as the same value as the minimum threshold. An undesirable result is defined as when, during average hydrogeologic conditions and as a long-term average, the total groundwater pumping volume exceeds 112,000 acre-feet per year.

The Plan describes how setting the minimum threshold as the long-term sustainable yield for the Subbasin is a reasonable, protective approach against overdraft and the long-term reduction of groundwater storage. The Plan also describes how the sustainable management criteria for the reduction of groundwater storage relate to the other sustainability indicators and adjacent basins. The Plan, however, does not include information about what is defined as "average hydrogeologic conditions" or how the long-term average will be calculated to determine when or if an undesirable result has occurred.[86] Department staff recommend average hydrogeologic conditions be defined in the Plan because, without clarification, it will be difficult to know with certainty whether an undesirable result has occurred (see Recommended Corrective Action 4).

[83] 180/400 Foot Aquifer Subbasin GSP, Section 8.6.2.2, p. 269.
[84] Water Code § 10721(x)(1).
[85] 180/400 Foot Aquifer Subbasin GSP, Section 8.7.1, p. 279.
[86] 180/400 Foot Aquifer Subbasin GSP, Section 8.7, p. 279-285.

4.3.3.3 Seawater Intrusion

The Plan defines significant and unreasonable seawater intrusion as conditions that are worse than those experienced in 2017. The minimum threshold is defined in the Plan as the 2017 mapped extent of intrusion (i.e., the isocontour line representing 500 mg/L chloride concentration) reported in the 180-Foot Aquifer and 400-Foot Aquifer by the MCWRA, and at the line defined by Highway 1 for the Deep Aquifers. Any exceedance of the minimum threshold in a one-year period is defined as an undesirable result.[87] The measurable objectives aim to retreat the seawater intrusion (from inland toward the coast) to the line defined by Highway 1.

Department staff conclude that the sustainable management criteria defined in the Plan for seawater intrusion are commensurate with the understanding of seawater intrusion in the Subbasin and will be reasonably protective of the beneficial uses and users of groundwater in the Subbasin, and if progress toward the measurable objective is achieved, will have a positive impact on groundwater users. Furthermore, preventing further seawater intrusion will be beneficial to domestic users in the Subbasin who may reside in areas at risk from further intrusion.

4.3.3.4 Degraded Water Quality

The Plan identifies significant and unreasonable degraded water quality conditions as any increase in a chemical constituent that results in groundwater concentrations in a supply well exceeding an established maximum contaminant level (MCL), secondary maximum contaminant level (SMCL), or that lead to reduced crop production by exceeding an established agricultural water quality objective. The minimum threshold and measurable objectives are defined as zero additional wells that are in the GSP monitoring program exceeding an MCL, SMCL, or water quality objective as defined in the Plan. An undesirable result is defined as any additional well in the monitoring program that exceedances an MCL, SMCL or water quality objective that occurs as a direct result of projects or management actions taken as part of GSP implementation.

The Plan leverages existing water quality regulatory programs operating in the Subbasin to assess degraded water quality. The Plan identifies four different sets of wells (small community, public supply, domestic, and irrigation) that are included in the Subbasin's monitoring network that will be assessed for up to thirteen different constituents as part of the degraded water quality sustainable management criteria. The identified constituents were developed based on feedback from groundwater users and the results of two studies done by the USGS in the Subbasin. The approach of using local feedback and an independent study done by the USGS to identify the constituents of concern in the basin is a reasonable way to set the sustainable management criteria for water quality.

Department staff conclude that the Plan's approach of using newly impacted wells as the basis for its water quality sustainable management criteria is generally reasonable and consistent with the GSP Regulations. However, staff find that the approach to focus only

[87] 180/400 Foot Aquifer Subbasin GSP, Section 8.8, p. 285-292.

on water quality impacts associated with GSP implementation, i.e., GSP-related projects, is inappropriately narrow. Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. GSAs are required; however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions. Where natural and other human factors are contributing to water quality degradation, the GSAs may have to confront complex technical and scientific issues regarding the causal role of groundwater extraction and other groundwater management activities, as opposed to other factors, in any continued degradation; but the analysis should be on whether groundwater extraction is causing the degradation in contrast to only looking at whether a specific project or management activity results in water quality degradation. Department staff recommend that the SVBGSA coordinate with the appropriate water quality regulatory programs and agencies in the Subbasin to understand and develop a process for determining when groundwater management and extraction is resulting in degraded water quality in the Subbasin (see Recommended Corrective Action 5).

4.3.3.5 Land Subsidence

The Plan describes significant and unreasonable land subsidence conditions as any level that results in impacts to infrastructure in the Subbasin. The minimum threshold and measurable objective for land subsidence are defined as no more than -0.1 feet of subsidence anywhere in the Subbasin based on the annual InSAR dataset released by the Department and zero feet of long-term subsidence. An undesirable result is defined as an exceedance of the minimum threshold in any one year.

Setting the minimum threshold at a value of -0.1 feet per year is sound, as it reflects the stated error within the InSAR dataset. The sustainable management criteria for land subsidence represents a reasonable approach to prevent future land subsidence in the Subbasin.

4.3.3.6 Depletions of Interconnected Surface Water

The Plan describes significant and unreasonable depletions of interconnected surface water as conditions which prevent MCWRA from meeting biological flow requirements for the Salinas River or would cause an unreasonable impact on other beneficial uses and users such as surface water rights holders. The Plan describes how the Salinas River, the major surface water body in the Subbasin, is managed to achieve multiple objectives including maintaining environmental flows, groundwater recharge, and fulfilling the obligations of surface water right holders. According to the Plan, the current level of estimated depletions of interconnected surface water are considered potentially significant but not unreasonable. Therefore, SVBGSA set the minimum threshold for the depletion of interconnected surface water at 69,700 acre-feet per year (the estimated average future stream leakage from the draft SVIHM), which the Plan describes as a

reasonable estimate of current depletions.[88] [89] The measurable objective is set at the same values as the minimum threshold.

The Plan includes the reasoning that the current depletion rates are already incorporated into the river management plan designed to protect environmental uses, particularly steelhead.[90] The Plan states that "since flow requirements were being met under the 2007 biological opinion, surface water depletion rates were not unreasonable with regards to maintaining environmental flow requirements."[91] The Plan notes that stream depletions will be revisited after a new habitat conservation plan to manage flows on the Salinas River is drafted.

Department staff find the approach to maintain depletion rates at the best estimate of current depletions as a reasonable approach to maintain the current conditions in the Subbasin. The Plan states that the value of the minimum threshold (i.e., 69,700 acre-feet per year) is subject to change "…as soon as the [final SVIHM] is available…"[92] Therefore, Department staff's finding is focused on the Plan's rationale not to exacerbate depletions rather than the actual quantity presented in the initial Plan. Department staff encourage the GSA to provide its updated quantitative threshold as soon as SVIHM is finalized and documentation of the model is available for review.

The Plan defines that an undesirable result occurs when, during average hydrogeologic conditions and as a long-term average over all hydrogeologic conditions, depletions of interconnected surface waters exceed the minimum threshold. The Plan, however, does not include information about what is defined as average hydrogeologic conditions or how the long-term average will be calculated to determine when, or if, an undesirable result has occurred.[93] During GSP implementation, the Plan should be updated to define what constitutes average hydrogeologic conditions and how the long-term average hydrogeologic conditions will be calculated (see Recommended Corrective Action 4).

4.4 MONITORING NETWORKS

GSP Regulations require that a monitoring network be developed for each basin including monitoring objectives, monitoring protocols, and data reporting requirements. The network shall promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions.[94]

---

[88] Note that the discussion in Section 8.11 is not explicit about the origin of the 69,700 acre-feet per year value, but Department staff interpret it to be the 2030 "Stream Leakage" into the groundwater system (71,500 acre-feet per year in Table 6-26) minus the 2030 "Flows to Streams" out of the groundwater system (1,800 acre-feet per year in Table 6-27).
[89] 180/400 Foot Aquifer Subbasin GSP, Section 8.11.2, p. 312.
[90] 180/400 Foot Aquifer Subbasin GSP, Section 8.11.1, p. 311.
[91] *Ibid.*
[92] 180/400 Foot Aquifer Subbasin GSP, Section 8.11.2, p. 312.
[93] 180/400 Foot Aquifer Subbasin GSP, Section 8.7, p. 279-285.
[94] 23 CCR § 354.32 *et seq*.

4.4.1 Evaluation Summary

The monitoring network for the Subbasin substantially complies with the requirements outlined in the GSP Regulations.[95] Separate monitoring networks were developed for each of the six sustainability indicators and each network leverages existing monitoring efforts already occurring in the Subbasin. The Plan identifies specific data from the existing monitoring efforts that will be utilized to assess groundwater conditions in the Subbasin.

The Plan includes a strategy to assess and improve the monitoring networks in the future.[96] Data gaps in each monitoring network are identified and a strategy to address the gaps are included in the Plan. Department staff concur that there are critical data gaps that should be addressed early in GSP implementation. Failure to do so may make it difficult to demonstrate that implementation of the Plan is achieving the sustainability goal of the Subbasin, which may influence subsequent plan assessments by the Department.

4.4.2 Monitoring Networks

The groundwater level monitoring network uses the wells selected by MCWRA for the CASGEM program. The network includes 23 wells: 12 wells in the 180-Foot Aquifer, 10 wells in the 400-Foot Aquifer, and 1 well in the Deep Aquifers. The Plan states the monitoring network is limited to data points and locations that are publicly available and not confidential, which limited the network to wells owned by MCWRA.[97] The Plan identifies groundwater level monitoring data gaps in each of the principal aquifers[98] and includes a proposal to address them by either working with MCWRA to add some privately owned wells within MCWRA's network to the GSP monitoring network or installing new monitoring wells.[99] Department staff concur that there appear to be significant data gaps in the groundwater level monitoring network, particularly in the Deep Aquifers and recommend the GSAs take action to address the data gaps early in GSP implementation. The Plan provides few details on the schedule to fill the data gaps and expand the monitoring network.[100] Department staff recommend the GSA provide detailed updates on yearly progress toward expanding the monitoring network in its annual reports and that future iterations of the GSP include more detail on how and when data gaps related to monitoring network expansion will be addressed.

Reduction of groundwater storage will be monitored using multiple methods to estimate the total amount of groundwater withdrawn from the Subbasin annually. The Plan proposes four methods to account for groundwater extraction by different use types, including reviewing extraction data from public supply well annual reports, reviewing extraction data from agricultural wells reported to MCWRA, estimating pumping volume

[95] 23 CCR § 354.34 *et seq*.
[96] 23 CCR § 354.38 *et seq*.
[97] 180/400 Foot Aquifer Subbasin GSP, Section 7.1.2-7.2,2, p. 228-229.
[98] 180/400 Foot Aquifer Subbasin GSP, Figures 7-4, 7-5, and 7-6, p. 236-238.
[99] 180/400 Foot Aquifer Subbasin GSP, Section 10.4.1, p. 412.
[100] E.g., Figure 10-1 (p. 421), which simply shows an arrow representing the Monitoring Network Expansion activity extending for the entire five years after GSP adoption.

from crop data and crop multipliers, and estimating domestic groundwater extraction using a water-use factor.[101] One area of uncertainty within the groundwater storage monitoring network discussed in the Plan is the ability of the SVBGSA to access confidential extraction data reported to MCWRA. The SVBGSA acknowledges the need for a coordinated program between the agencies and the development of a protocol for sharing data that is currently reported under this ordinance. Department staff concur that development of a coordinated data-sharing program is an important activity and recommend addressing this item as soon as possible.

The monitoring network for seawater intrusion is based on a portion of the existing network operated by MCWRA which has been monitoring and tracking seawater intrusion in the Subbasin since 1947.[102] The monitoring network proposed in the Plan consists of 48 wells from the MWCRA network, including 17 wells in the 180-Foot Aquifer, 31 wells in the 400-Foot Aquifer, and zero wells in the Deep Aquifers. The Plan concludes that zero seawater intrusion monitoring wells in the Deep Aquifers is not sufficient and that this is a data gap.[103] The Plan states that MCWRA was directed by the Board of Supervisors in 2018 to conduct an investigation of the Deep Aquifers and that findings from that investigation will be incorporated into the Plan.[104] Department staff concur that addressing the identified data gap in the Deep Aquifers is important and recommend that information from the new investigation be incorporated into the first five-year assessment of the Plan.

The monitoring network to evaluate degradation of groundwater water quality is based on three existing water quality regulatory programs operating in the Subbasin: Monterey County's small community water system wells program, the State Water Resources Control Board's public supply well program, and the Central Coast Water Board's Irrigated Lands Regulatory Program. The Plan proposes to use four sets of wells that are routinely sampled under these programs. Within each set of wells, a specific set of constituents of concern will be monitored. In total, the monitoring network consists of 136 small community water system wells, 51 public supply wells, and a currently unknown number of domestic and agricultural wells from the Irrigated Lands Regulatory Program. The specific number of Irrigated Lands Regulatory Program wells will be finalized when the Central Coast Water Board adopts Agricultural Order 4.0 (anticipated in 2020).[105] The Plan identifies the lack of well construction information (e.g., the depth of well screens or the total depth of the well) for many groundwater quality monitoring wells as a data gap.[106] The implementation chapter of the Plan simply states that "[d]uring implementation, the SVBGSA will obtain any missing well information, select wells to include in monitoring network, and finalize the water quality network." Department staff recommend the

[101] 180/400 Foot Aquifer Subbasin GSP, Section 7.3, p. 239.
[102] 180/400 Foot Aquifer Subbasin GSP, Section 7.4-7.4.1, p. 240-245.
[103] 180/400 Foot Aquifer Subbasin GSP, Section 7.4.2, p. 245.
[104] 180/400 Foot Aquifer Subbasin GSP, Section 10.3, p. 411.
[105] 180/400 Foot Aquifer Subbasin GSP, Section 7.5, p. 246.
[106] 180/400 Foot Aquifer Subbasin GSP, Section 7.5.2, p. 249.

SVBGSA provide updates on the progress toward filling this data gap in its annual reports and that more details be provided in the first five-year assessment of the Plan.

The monitoring network for land subsidence will utilize the Department's InSAR remote sensing dataset. The InSAR dataset provides good spatial coverage and likely is the best available tool for monitoring land subsidence in the Subbasin. Department staff find the proposed land subsidence network to be sufficient.

Currently, there is no dedicated monitoring network for depletions of interconnected surface water. The Plan states that depletions will be evaluated using the SVIHM, consistent with guidance provided in the Department's best management practices.[107] The SVIHM will supply surface water discharge, surface water head, baseflow contributions, and the location of ephemeral or intermittent streams through temporal changes in conditions including regional groundwater extraction. To increase understanding of the interconnection between the surface water and groundwater systems, and to inform the SVIHM's depletion of interconnected surface water modeling, the SVBGSA plans to add up to two shallow monitoring wells near the Salinas River.[108] Department staff support the usage of SVIHM to model and monitor the depletion of interconnected surface. However, staff note, and some public comments also note, that the SVBGSA's plan to calculate depletion using SVIHM only every five years[109], rather than annually, may not provide sufficient temporal resolution if impacts occur.

4.5 PROJECTS AND MANAGEMENT ACTIONS

GSP Regulations require a description of the projects and management actions the submitting agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.[110]

4.5.1 Evaluation Summary

The Plan includes a suite of projects and management actions that appear to be reasonable and feasible, and, if implemented, will likely ensure that the Subbasin is operated within its sustainable yield.[111] The fundamental structure of groundwater management in the Subbasin is a management action called the water charges framework.[112] The water charges framework will charge groundwater users a series of fees for groundwater extraction in the Subbasin. The Plan also includes a series of other projects and management actions that may be implemented, if necessary, to achieve sustainability in the Subbasin. Projects are defined as activities that support groundwater

[107] 180/400 Foot Aquifer Subbasin GSP, Section 7.7, p. 250.
[108] 180/400 Foot Aquifer Subbasin GSP, Section 10.4.6, p. 414.
[109] 180/400 Foot Aquifer Subbasin GSP, Section 8.11.2.6, p. 317.
[110] 23 CCR § 354.44 *et seq*.
[111] 180/400 Foot Aquifer Subbasin GSP, Section 9.1, p. 320-321.
[112] 180/400 Foot Aquifer Subbasin GSP, Section 9.2, p. 321-323.

sustainability that require infrastructure, while management actions are defined as activities that support groundwater sustainability that do not require infrastructure.

The SVBGSA provides timelines for when they expect to see progress toward developing the priority projects and management actions. The projects and management actions are prioritized by reasonableness and feasibility, considering both financial constraints and physical constraints (i.e., large-scale infrastructure developments). The projects and management actions consider the effects on sustainable management criteria and an evaluation of benefits to the Subbasin. The projects and management actions are also part of a larger effort to have coordinated groundwater management in the greater Salinas Valley Basin which is called the Integrated Sustainability Plan.

4.5.2 Projects

Two sets of projects, described as priority projects and alternative projects, are included in the Plan to help the Subbasin achieve its sustainability goal. The projects are divided into four types: in-lieu recharge, direct recharge, indirect recharge, and hydraulic seawater intrusion barrier. Each project in the Plan includes a description, a list of relevant measurable objectives, expected benefits and evaluation of benefits, circumstances for implementation, public noticing, the permitting and regulatory process, implementation schedule, legal authority, and estimated cost. Also included for each project description is an estimate of the expected water savings, capital cost, annual operation and maintenance cost, and amortized cost. The estimated benefits for each project were calculated using a simplified groundwater model. All projects included in the Plan will be part of the larger Integrated Sustainability Plan.

The Plan identifies nine priority projects covering all four project types that may be implemented during GSP implementation. Many of the projects involve supporting or working to enhance ongoing efforts by other agencies in the Subbasin aimed to reduce groundwater use and increase recharge. The priority projects include removal of invasive species along the Salinas River, optimization of the Castroville Seawater Intrusion Project, modification of the Monterey One Water recycled water plant for winter operations, expanding the Castroville Seawater Intrusion Project service area, maximizing the existing Salinas River Diversion Facility's diversions, installing a seawater intrusion barrier, and installing new surface water diversions or expanding their operation. Four alternative projects are also included in the Plan that, if implemented, would provide the Subbasin with additional water supplies through two in-lieu recharge projects and two direct recharge projects.[113] The list of priority projects included in the Plan, if implemented, are estimated to provide up to 40,200 acre-feet per year of potential groundwater yield, much more than the projected overdraft in the Subbasin.

The projects included in the Plan are reasonable and, if implemented, will likely help the SVBGSA achieve sustainability in the Subbasin. Department staff find that the decision to provide support and partner with other entities who are already working on existing or

[113] 180/400 Foot Aquifer Subbasin GSP, Section 9.4, p. 341-405.

proposed projects is a sound approach to lower costs and maximize resources, making the projects arguably more feasible. The Plan outlines how the water charges framework will provide long-term funding to support the SVBGSA and fund these projects. The combination of a series of projects which will address the proposed overdraft, a stable funding source, and partnering with other entities to maximize resources appears likely to help ensure sustainability in the Subbasin.

4.5.3 Management Actions

The Plan includes a list of management actions that are intended to reduce or optimize local groundwater use. One management action, the water charges framework, will initially be implemented and the other management actions will only be implemented if they are deemed cost effective and necessary to achieve sustainability.[114]

The water charges framework, referred to as the fundamental structure for managing groundwater in the Subbasin, establishes a three-tiered system that will charge fees for groundwater extraction in the Subbasin. Each parcel will be allocated a sustainable pumping allowance based on the sustainable yield of the Subbasin, with the summation of all sustainable pumping allowances equaling the sustainable yield. Groundwater users will be allowed to pump more groundwater than their sustainable allowance; however, this groundwater will be subject to higher fees. The water charges framework incudes a transitional pumping allowance that will expire during GSP implementation but is aimed to allow groundwater users the ability to adapt to their sustainable pumping allowance without paying the highest level of fees. All groundwater pumped in excess of the transitional pumping allowance, called supplemental pumping, will be subject to the highest fee, disincentivizing pumping at this level. The tiered-rate structure of the water charges framework intends to promote voluntary pumping reductions by charging higher fees for pumping in excess of the sustainable yield and provide funding for the GSA and projects by collecting fees. The Plan identifies exempt pumpers (i.e., de minimis pumpers) in the water charges framework and plans to implement the water charges framework within the Subbasin while further developing the overall structure of the program for the entire Salinas Valley Basin.[115]

The Plan provides a general structure for how the water charges framework will be implemented but also acknowledges many of the specific components of the water charges framework still need to be negotiated and further developed during GSP implementation. The primary effort, within the first 3 years of Plan implementation, will consist of interested party engagement and negotiations to establish the criteria for the water charges framework, such as determining allowances for each user type and the fee for each fee tier.[116]

[114] 180/400 Foot Aquifer Subbasin GSP, Section 9.3, p. 329.
[115] 180/400 Foot Aquifer Subbasin GSP, Section 9.2, p. 321-323.
[116] 180/400 Foot Aquifer Subbasin GSP, Section 9.2.7, p. 328-329.

The Plan includes six additional management actions that will be implemented only if they are deemed cost effective or necessary to achieve sustainability. The management actions include using the water charges fee revenue to purchase and retire irrigated land from landowners on a voluntary basis and developing an outreach and education program to encourage the use of agricultural best management practices. The agricultural best management practices program will include improving data collection and inform the community about advancements in agricultural practices including water conservation. The Plan includes four other management actions including supporting regional efforts to develop a Habitat Conservation Plan for reoperation of the Nacimiento and San Antonio Reservoirs, restricting pumping in the Castroville Seawater Intrusion Project area, supporting the strengthening of existing local ordinances, and organizing a seawater intrusion working group.[117]

Management actions included in the Plan are likely to help the SVBGSA achieve sustainability in the Subbasin. The water charges framework concept is sound being that groundwater users are likely to voluntarily reduce their pumping volumes simply to avoid paying higher fees. The strategy to charge groundwater users that exceed their sustainable allowance higher fees which then are used to fund projects and other management actions intended to reduce or optimize local groundwater use makes sense as a way to mitigate any additional overdraft that may be occurring under the water charges framework. The combination of the voluntary pumping reduction produced by the water charges framework and other projects and management actions included in the Plan give the SVBGSA several pathways to achieve sustainability in the Subbasin during GSP implementation.

4.6 Consideration of Adjacent Basins/Subbasins

SGMA requires the Department to "…evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin."[118] Furthermore, the GSP Regulations state that minimum thresholds defined in each GSP should be designed to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.[119] The 180/400 Foot Aquifer Subbasin has five adjacent subbasins; four within the Salinas Valley Basin (the Langley Area, Eastside Aquifer, Monterey, and Forebay Aquifer subbasins) and one within the Corralitos Basin (Pajaro Valley Subbasin). The Plan includes an analysis of potential impacts to adjacent basins with the defined minimum thresholds for each sustainability indicator. The Plan does not anticipate any impacts to adjacent basins resulting from the minimum thresholds defined in the Plan.

[117] 180/400 Foot Aquifer Subbasin GSP, Section 9.3, p. 329-341.
[118] Water Code § 10733(c).
[119] 23 CCR § 354.28(b)(3).

The SVBGSA is the exclusive GSA, or one of the coordinating GSAs, for each of the adjacent Salinas Valley subbasins whose GSPs are due to the Department by January 31, 2022. The SVBGSA plans to develop minimum thresholds collectively for the adjacent Salinas Valley subbasins and take into consideration the minimum thresholds established for the 180/400 Foot Aquifer Subbasin. The SVBGSA anticipates this process will not prevent the neighboring subbasins and the 180/400 Foot Aquifer Subbasin from achieving their sustainability goals.[120] The Plan also outlines a strategy to closely coordinate with the Pajaro Valley Water Management Agency GSA for the Pajaro Valley Subbasin to ensure that the basins do not prevent each other from achieving sustainability.

The Plan further describes a coordinated effort between all subbasins under the legal authority of the SVBGSA to operate under an informal Integrated Sustainability Plan. The Integrated Sustainability Plan will cover the six subbasins overseen by the SVBGSA and incorporate many elements of each Plan, including projects and management actions, into a basin-wide coordinated effort. While the Integrated Sustainability Plan concept is not required by the GSP Regulations and will not be formally submitted to the Department, a basin-wide approach to manage multiple subbasins through coordination of one or more GSAs is a reasonable concept and may improve the likelihood of all subbasins achieving sustainability.

[120] 180/400 Foot Aquifer Subbasin GSP, Section 8.6.2.4, p. 272.

5 STAFF RECOMMENDATION

Department staff's recommendation is to approve the GSP with the recommended corrective actions listed below. The 180/400 Foot Aquifer Subbasin GSP conforms with Water Code Sections 10727.2 and 10727.4 of SGMA and substantially complies with the GSP Regulations. Implementation of the GSP will likely achieve the sustainability goal for the 180/400 Foot Aquifer Subbasin. The SVBGSA has identified several areas for improvement of its Plan and Department staff concur that those items are important and should be addressed as soon as possible. Department staff have also identified additional recommended corrective actions that should be considered by the GSA for the first five-year assessment of its GSP. Addressing these recommended corrective actions will be important to demonstrate that implementation of the Plan is likely to achieve the sustainability goal. The recommended corrective actions include:

RECOMMENDED CORRECTIVE ACTION 1

SVBGSA should provide additional information on the required, ongoing communications elements required in the GSP Regulations[121], and describe how those required elements fit into phase four of the GSA's Engagement and Outreach Strategy, including engagement of irrigation, drinking water supply, and environmental beneficial users as identified in the Plan.

RECOMMENDED CORRECTIVE ACTION 2

Investigate the hydraulic connectivity of the Salinas River, the non-principal shallow aquifer, and the principal aquifers. Identify specific locations where the Salinas River gains or loses water to the groundwater system. Based on results of the investigation, provide updated discussion of the potential for management of the principal aquifers to impact beneficial uses and users of groundwater in the shallow aquifer, including that the GSA should document known impacts to drinking water users, should they occur, or surface water.

RECOMMENDED CORRECTIVE ACTION 3

SVBGSA should clarify its plan to conduct necessary field reconnaissance for GDE identification. Update future iterations of the GSP with the results of the field studies to identify GDEs in the Subbasin.

RECOMMENDED CORRECTIVE ACTION 4

Define what constitutes "average hydrogeologic conditions" and how the "long-term average over all hydrogeologic conditions" will be calculated for the consideration of

[121] 23 CCR § 354.10(d).

undesirable results for reduction of groundwater storage and depletions of interconnected surface water.

RECOMMENDED CORRECTIVE ACTION 5

Coordinate with the appropriate groundwater users, including drinking water, environmental, and irrigation users as identified in the Plan, and water quality regulatory agencies and programs in the Subbasin to understand and develop a process for determining if groundwater management and extraction is resulting in degraded water quality in the Subbasin.